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NOTES FROM PACIFIC COAST OBSERVATORIES.

THE RADIAL VELOCITY OF *α Orionis*.

In view of the close connection between variations in the luminosity and in the radial velocities of stars, the disputed question of the variability of *α Orionis* suggested that it would be of interest to examine the radial velocities which have been found for this star. Five plates taken with the Mills spectrograph in its earlier form had given velocities in 1896-98 between $+ 17.7$ and $+ 19.4^{km}$. Before the autumn of 1907 three more plates had been obtained with the same instrument in its new form, and these had been only roughly measured. The result of more careful measurement and reduction was to make it practically certain that the velocity in 1906 January was 4 or 5^{km} in excess of the values previously found. When this was known Dr. CAMPBELL very kindly allowed spectrograms to be obtained on a large number of nights, and an even longer series of plates would have been secured had the weather not interfered. The plates from 5035F on have been only provisionally measured, but care has been taken not to introduce any systematic difference as compared with the earlier reductions, and the accuracy of the measures is sufficient for its purpose.

Two spectrograms of *α Orionis* had been obtained in 1903 by Professor W. H. WRIGHT while in charge of the Southern Mills Expedition. These plates he was good enough to measure for me, taking special care to make the reductions uniform with the system adopted by Dr. CAMPBELL for his earlier plates.

Dr. KÜSTNER's recent paper (*Astrophysical Journal*, **27**, 301) contains four results for *α Orionis* obtained in 1905-06. These may have a small systematic difference from the Mount

Hamilton results, and it seems likely from a superficial examination of the velocities of the few stars of this type contained in Dr. KÜSTNER'S list that in fact the Bonn measures are about 2^{km} in excess of those secured on Mount Hamilton.

All the available results are collected in the table, an inspection of which can leave little doubt but that the radial velocity of *α Orionis* is variable. Generally speaking, the velocity seems to have tended towards a minimum about the year 1898 and to have reached a maximum about 1905 or 1906. In spite of the uncertainty as to any systematic correction which the Bonn results may require to make them comparable, they at least confirm the larger velocity derived from the only Mills plate obtained in 1906. From that date the velocity seems to have slowly decreased, without, however, falling to the level of the values which prevailed in 1896-98.

If the fact of the variable velocity be admitted, it is difficult to draw from the present data any certain conclusion as to the period and nature of the motion. The general variation indicated is one of long period, certainly of many years. But there are indications of irregularities of shorter period about which it is hard to decide whether they are real or spurious. The results obtained in the last two months of 1907 suggest a fairly continuous decrease of the velocity of about 2^{km}. On the other hand, the fourteen plates obtained between 1908 January 5 and April 19 all fall within a range of 1.2^{km}, which, in view of the expeditious method of reduction adopted, must be considered a very satisfactory representation of uniform motion. On the whole, the star seems to deserve continued and careful attention.

Under the circumstances, *α Orionis* is not a suitable star for use in a determination of the Solar Parallax. It is included in the working list of the Cape Observatory (*Astrophysical Journal,* 27, 165).

H. C. PLUMMER.

1908 July.

Plate.	Date.	Vel.	Red. by	Spectrograph.
176 B	1896 Oct. 3	+ 19.4	CAMPBELL	First Mills
225 A	Dec. 8	+ 18.5	"	"
243 D	1897 Jan. 5	+ 17.8	BURNS	"
610 A	1898 Jan. 25	+ 18.4	CAMPBELL	"
644 A	Feb. 14	+ 17.7	"	"

Plate.	Date.	Vel.	Red. by	Spectrograph.
3063 D	1903 Dec. 1	+ 19.36	H. C. P.	Second Mills
3078 F	7	+ 18.42	"	"
4160 B	1906 Jan. 26	+ 23.97	"	"
5018 D	1907 Nov. 1	+ 22.56	"	"
5019 E	1	+ 22.74	"	"
5029 D	7	+ 23.45	"	"
5035 F	10	+ 21.9	"	"
5046 D	15	+ 22.0	"	"
5047 A	21	+ 21.4	"	"
5051 B	23	+ 21.2	"	"
5052 D	23	+ 20.4	"	"
5057 H	24	+ 21.7	"	"
5065 H	26	+ 22.8	"	"
5071 D	29	+ 20.1	"	"
5073 A	30	+ 20.3	"	"
5078 B	Dec. 17	+ 19.1	"	"
5084 C	23	+ 20.9	"	"
5089 C	1908 Jan. 2	+ 19.2	"	"
5096 D	5	+ 21.1	"	"
5097 H	5	+ 20.7	"	"
5111 C	9	+ 21.9	"	"
5118 A	28	+ 20.7	"	"
5138 B	Feb. 17	+ 21.4	"	"
5205 A	Apr. 1	+ 20.7	"	"
5207 A	2	+ 20.9	"	"
5218 H	6	+ 20.9	"	"
5219 A	8	+ 21.2	"	"
5224 B	9	+ 21.6	"	"
5227 E	12	+ 21.0	"	"
5228 A	16	+ 21.0	"	"
5234 A	17	+ 21.9	"	"
5236 A	19	+ 20.8	"	"
(4 III)	1903 Sept. 15	+ 20.72	WRIGHT	Southern Mills
(42 III)	Nov. 11	+ 20.32	"	"
(356)	1905 Feb. 9	+ 27.89	ZURHELLEN	Bonn
(367)	Mar. 1	+ 25.30	"	"
(533)	Dec. 30	+ 26.46	"	"
(591)	1906 Mar. 4	+ 26.64	"	"